

Reliability and Market Considerations for a Grid in Transition

Attachment #7.2.1
Return to Agenda

Overview of Draft Report and Next Steps

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New York State Reliability Council – Executive Committee

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Agenda

- Background
- Overview of Report
- Expected Schedule & Next Steps

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Background

Background: A grid in transition

- The NYISO has been working to identify any gaps in the analyses needed in the context of the State's more aggressive trajectory for transitioning to a cleaner and more sustainable energy future in New York.
- Various stakeholders have also asked the NYISO about market and reliability concerns related to the State's public policy actions.
- The outline of this report was provided for discussion at NYISO sector meetings and was also reviewed with stakeholders at the April 15 MIWG.
 - The goal was to bring together the analysis that has already been performed and to outline additional work that we recommend undertaking.
 - Comments from stakeholders, both verbal and written, were received and considered.

Background: A grid in transition

- The draft *Reliability and Market Considerations for a Grid in Transition* report was posted on May 24, 2019.
 - This presentation will provide an overview of the report and its conclusions
 - We are seeking stakeholder comments on the draft
 - We request that written comments be provided by June 24
 - Comments can be submitted to DEckels@nyiso.com
- We will be updating the *Reliability and Market Considerations for a Grid in Transition* report in late summer 2019.
- Ultimately the report will drive updates to the long-term Market Design Master Plan and project prioritization discussions in 2019 and beyond.
 - The report will also inform the Board Strategic Planning session in September 2019.

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Background: A grid in transition

- **The report:**
 1. describes the emerging reliability and economic challenges;
 2. presents our initial identification of gaps to address; and
 3. proposes next steps.
- **The report focuses on market design improvements, but also identifies the need for changes to operations and planning processes necessary for maintaining reliability.**
 - The report focuses on how the wholesale energy market in New York can continue to provide pricing and investment signals necessary to reflect system needs and to attract and retain enough controllable and flexible resources to balance the electric system and provide grid services necessary for reliability?

Review of Findings and Conclusions

Approach

- We approach these questions with two guiding principles:
 1. all aspects of grid reliability must be maintained; and
 2. competitive markets should continue to maximize economic efficiency and minimize the cost of maintaining reliability.
- The key is to anticipate the needs for existing and new grid reliability services and proactively evolve the wholesale market design to accomplish those needs.
- Wholesale markets must continue to reflect all grid reliability services needed through defined products, with product pricing that reflects the marginal cost to serve or forego service (when supply is scarce) to meet the reliability need.
- **Prices can serve as a powerful control signal: they rise where and when necessary to attract and make available essential grid services.**

Initial Assessment of emerging reliability challenges

- **The primary future challenges arise from the variability and unpredictability of large and distributed wind and solar generation.**
 - As the penetration of those technologies increases, the grid will likely need more load-following capability, and possibly more fast-response and flexible resources that provide operating reserves to address expected and unexpected changes in net load.
 - The grid will also need a substantial amount of installed reserve capacity that is available to serve load when wind and/or solar generation output is insufficient for periods that may range from minutes to several days.
 - It will be important to examine the need for strategic transmission investments that enhance the operational flexibility of the grid and accommodate the integration of high levels of intermittent renewable generation.

Combined cycle revenues under different scenarios

- In a future without market design enhancements, the wholesale market revenues will not support the investment of new flexible generation needed to maintain grid reliability.

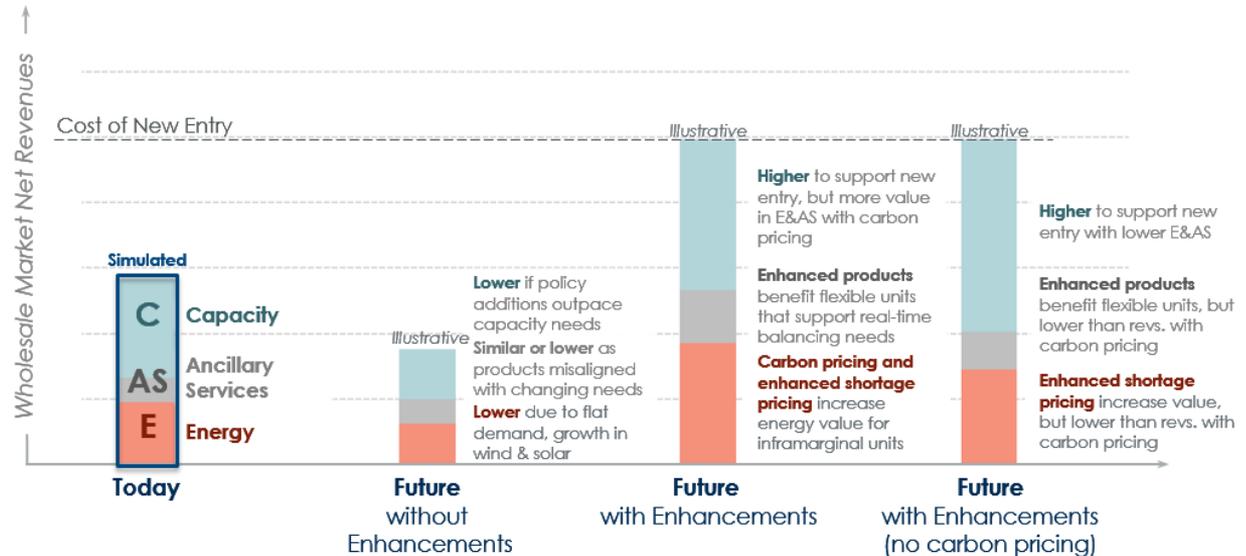


Figure 2: Illustrative Change in Revenues, 1x1 Gas Combined-Cycle (Assuming New Entry is Needed)

Potential NYISO Market Design Enhancements

- The report identified potential market design enhancements, currently at various stages from investigation to development.
 - Many are ongoing (“Ongoing Effort”), some are new efforts in prioritization (“Under Consideration”), and others would require further study and discussion with stakeholders before proposing any specific enhancements (“Investigate”).
- The market design enhancement opportunities are consistent with the long-term Market Design Master Plan and project prioritization discussions for 2020 projects.
- The next two slides provide an overview of the Energy & Ancillary Services markets and the Installed Capacity market opportunities identified.

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Market Enhancement Opportunity: Energy & Ancillary Services Market

| Market Enhancement Opportunity | Status |
|--|---------------------|
| Carbon Pricing | Ongoing Effort |
| Define Reliability Challenges | Ongoing Effort |
| Enhance Energy and Shortage Pricing | Ongoing Effort |
| Evaluate Load Forecasting Approach | Ongoing Effort |
| Review Energy and Ancillary Services (E&AS) Product Design | Ongoing Effort |
| Improve Intertie Scheduling | Under Consideration |
| Improving Fuel and Energy Security | Under Consideration |
| Engaging the Demand-Side | Investigate |
| Evaluate Changes to the Energy Market Construct | Investigate |

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Market Enhancement Opportunity: Installed Capacity Market

| Market Enhancement Opportunity | Status |
|--|---------------------|
| Enhancements to Resource Adequacy Models | Ongoing Effort |
| Revise Resource Capacity Ratings to Reflect Reliability Contribution | Ongoing Effort |
| Capacity Demand Curve Adjustments | Under Consideration |
| Comprehensive Mitigation Review | Under Consideration |
| Ensuring Year-round Resource Adequacy | Investigate |
| Enhance Capacity Market Pricing | Investigate |

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Conclusions

The NYISO recommends an approach that emphasizes Energy and Ancillary Services products and market pricing that are reflective of system conditions and operational needs.

- While each of the market design enhancement efforts reviewed in the report address the concerns and follow the principles outlined above, they must fit together coherently and efficiently satisfy New York’s grid reliability needs.
- Shortage pricing is particularly important to provide incentives for generating units to respond to real-time needs and to signal investment. Real-time shortage pricing enhancements are preferable to Installed Capacity market enhancements because real-time prices can reflect varied and dynamic operational needs better than any products that might be procured as “capacity.”
- The report also reviews the NYISO’s existing capacity market Buyer Side Mitigation (BSM) rules and finds that they may require further development in order to provide a comprehensive structure for administering and maintaining competitive wholesale energy markets.

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Expected Schedule & Next Steps

Expected Schedule

- Stakeholders will have the opportunity to provide comments through June 24, 2019. Comments received after that date will be reviewed on a best effort basis.
- An updated report will be available in late summer 2019.
 - The report will inform the NYISO's September Board Strategic Planning session.

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Next Steps

- We appreciate any and all feedback.
- Please send written comments to Debbie Eckels (DEckels@nyiso.com) by June 24, 2019.

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system



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